

What is claimed is:

1. A method of identifying an agent effective in treating insulin resistance, said method comprising the steps of:
 - i) incubating S6 kinase with a compound;
 - ii) detecting S6 kinase activity; and
 - iii) determining a compound-induced modulation in the S6 kinase activity relative to when said compound is absent, wherein an alteration of the S6 kinase activity in the presence of the compound is indicative of an agent effective in treating insulin resistance.
2. The method according to claim 1, wherein said modulation is inhibition of S6 kinase 1 activity.
3. The method according to claim 1, wherein said modulation is activation of S6 kinase 2 activity.
4. The method of any one of claims 1 to 3, comprising determining S6 kinase activity using S6 as a substrate.
5. The method of any one of claims 1 to 3, comprising determining S6 kinase activity using a peptide as a substrate.
6. A method of screening for an agent effective in treating insulin resistance, the method comprising
 - (a) contacting transcriptionally active cellular components with a nucleic acid encoding an S6K gene operably linked to a promoter sequence or an S6K promoter sequence operably linked to a reporter gene in the presence of at least one compound; and
 - (b) detecting an effect of said compound on S6 kinase expression or S6 kinase

promoter activity, wherein detection of a modulation in S6 kinase expression or promoter activity is indicative of an agent effective in treating insulin resistance.

7. The method of claim 6, wherein said transcriptionally active cellular components and said nucleic acid is present in a cell.
8. The method of claim 6 or 7, wherein said S6 kinase is S6 kinase 1 and said modulation is a decrease in S6 kinase expression or promoter activity.
9. The method of any one of claims 6 to 8, further comprising detecting an effect of said agent on insulin resistance.
10. An agent identified by any one of claims 6 to 9.
11. A method for reducing insulin resistance, said method comprising contacting an adipocyte, myocyte or hepatocyte with an effective amount of an S6 kinase 1 inhibitor.
12. The method of claim 11, wherein said S6K1 inhibitor preferentially reduces enzymatic activity of S6K1 compared to S6K2.
13. A method for treating or preventing the development of insulin resistance or diabetes, comprising administering to a subject a pharmaceutically effective amount of an S6 kinase modulator.
14. The method of claim 13, wherein said S6 modulator is an inhibitor that preferentially reduces S6K1 activity compared to S6K2.

15. The method of claim 13 or 14, wherein said inhibitor binds to an ATP binding site in S6K1.
16. The method of claim 13 or 14, wherein said inhibitor binds to a catalytic domain of S6K1.
17. The method of any one of claims 13 to 16, wherein said inhibitor is an antibody or antibody fragment specific for S6 kinase 1.
18. The method of claim 13 or 14, wherein said inhibitor is an antisense, ribozyme or siRNA that preferentially reduces expression of S6 kinase 1 compared to S6 kinase 2.
19. A method of diagnosing insulin resistance or a predisposition to insulin resistance, comprising:
 - (a) detecting the level of S6 kinase activity in a sample from a mammal; and
 - (b) correlating a change in S6 kinase activity when compared to a normal control value or range of values with insulin resistance or a predisposition to insulin resistance.
20. The method of claim 19, wherein said S6 kinase activity is S6K1 enzymatic activity.
21. The method of claim 19 or 20, wherein an increase in the level of S6K1 activity compared to a normal control indicates that said mammal is suffering from or has a predisposition to developing insulin resistance.